THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A network protection switching system for resynchronizing network communication between a line layer and a control layer after identification of a network failure, the system comprising:

    a) a resynchronization table for storing a plurality of connection states corresponding to a plurality of interconnected network elements, the interconnected network elements forming a network path in the line layer of the network; and

    b) an interface for providing access of a first controller to the connection states of the resynchronization table, the first controller included in the control layer which is coupled to the line layer for monitoring network traffic communicated therein;

    wherein resynchronization of the line layer and the control layer is established after the failure using the first controller to propagate the connection states for use by other controllers of the control layer.

2. The system according to claim 1 further including a protocol for accessing and utilizing the resynchronization table.

3. The system according to claim 2, wherein the protocol has a message able to accumulate the connection states of the network path and populate the resynchronization table with the accumulated connection states.

4. The system according to claim 3, wherein the connection states are selected from the group comprising: a port number, a time slot number, a fiber number, a wavelength number, a header, and cross connection information.

5. The system according to claim 3, wherein the protocol has a retrieval message for the first controller to obtain the data of the resynchronization table from the stored location.

6. The system according to claim 5, wherein the protocol has a set-up message populated by the retrieval message, the set-up message for propagation in the control layer for re-claiming disowned connection data caused by the failure.

7. The system according to claim 6, wherein the protocol has a time-out message for deleting disowned connections if the corresponding controller does not receive the set-up message within a pre-determined time period.

8. The system according to claim 6, wherein the first controller is an ingress controller of the network path.

9. The system according to claim 3, wherein the retrieved message is directed to a link containing the storage location of the resynchronization table.

10. The system according to claim 9, wherein the resynchronization table is stored at the location selected from the group comprising: remote and local.

11. The system according to claim 2, wherein the protection switching system can distinguish between a control layer and a line layer failure.

12. The system according to claim 6, wherein the protection switching system can distinguish between a controller layer and a line layer failure.

13. The system according to claim 2, wherein the protocol has a up-date message for modifying the connection states of the resynchronization table once initially stored.

14. The system according to claim 2, wherein one of the network elements is selected from the group comprising: a SONET cross connect, an add drop multiplexer, a time division multiplexer, a Lambda switch, a Photonic switch, a MEMS switch, a Bubble switch, a Wavelength filtering switch, an ATM switch, an MPLS switch, and a frame relay switch.

15. The system according to claim 14, wherein the first controller is an ingress controller.

16. The system according to claim 15, wherein the ingress controller maintains a updated version of the resynchronization table.

17. A resynchronization method for networks for re-establishing communication between a line layer and a control layer in the event of a failure, the method comprising the steps of:

   a) defining a plurality of interconnections between network elements contained in the line layer to generate a network path;

b) accumulating a plurality of connection states for the interconnected network elements of the network path;

c) storing the connection states by populating a resynchronization table, the resynchronization table coupled to a first controller of the control layer; and

d) providing the connection states of the resynchronization table to the controllers of the control layer in the event of the failure for resynchronization of the line layer and the control layer.

18. The method according to claim 17 further comprising the step of storing the resynchronization table at a location selected from the group comprising: remote and local.

19. The method according to claim 18 further comprising the step of accumulating the cross connection states once the network path has been defined for receiving by the first controller.

20. The method according to claim 19, wherein the connection states are selected from the group comprising: a port number, a time slot number, a fiber number, a wavelength number, a header, and cross connection information.

21. The method according to claim 19 further comprising the step of retrieving the connection state data from the resynchronization table by the first controller in the event of the failure.

22. The method according to claim 18, wherein the step of providing the connection states to the control layer results in re-claiming of disowned connection data.

23. The method according to claim 22 further comprising the step of deleting a disowned connection in response to the corresponding controller not receiving the connection state data of the resynchronization table within a pre-determined time.

24. The method according to claim 22, wherein retrieval of the connection states is obtained through a link to the resynchronization table.

25. The method according to claim 24, wherein the link is stored at a location selected from the group comprising: remote and local.

26. The method according to claim 18 further comprising the step of distinguishing between the control layer and the line layer failure.

27. The method according to claim 23 further comprising the step of distinguishing between the control layer and the line layer failure.

28. The method according to claim 18 further comprising the step of updating the connection states of the resynchronization table once initially stored.

29. A computer program product for re-establishing communication between a line layer and a control layer in the event of a failure in networks, the product comprising:

    a)   a computer readable medium;

    b)   a line layer module stored on the computer readable medium for defining a plurality of interconnections between network elements contained in the line layer to generate a network path;

    c)   an accumulator module coupled to the line layer module for gathering the connection states for the interconnected network elements of the network path once defined;

    d)   a resynchronization table module coupled to the accumulator module for storing the connection states for access by a first controller of the control layer; and

    e)   a message module for providing the connection states of the resynchronization table to the controllers of the control layer in the event of the failure for resynchronizing the line layer and the control layer.

30. A controller configured for monitoring the resynchronization of network communication between a line layer and a control layer after identification of a network failure, the controller including:

    a)   the controller linkable to the control layer of the network, the control layer for monitoring network traffic communicated in the line layer; and

    b)   a controller interface for providing access to a resynchronization table, the resynchronization table for storing a plurality of connection states corresponding to a plurality of interconnected network elements, the

interconnected network elements forming a network path in the line layer of the network;

wherein resynchronization of the line layer and the control layer is established after the failure using the controller to propagate the connection states for use by other controllers of the control layer.